
D-channel Diagnostic (LD 96)

The D-channel diagnostic program (LD 96) is used to test and maintain the D-channel link and the D-channel Interface card. Problems are reported in DCH messages.

Note: Complete operation of enhanced reporting requires X11 Release 17 or later, and QPC757 vintage E and later.

DCH release (RLS) and (EST) establish reports

A report is output when the D-channel is released or established. The format of this report is:

```
DCH x EST hh:mm:ss mm/dd/yyyy  
DCH x RLS hh:mm:ss mm/dd/yyyy
```

Where x is the D-channel number and RLS or EST indicates if the channel was released or established. The time and date is also output.

X11 Release 17 introduces enhanced D-channel reports.

The format of this report is:

```
DCH x EST REASON hh:mm:ss mm/dd/yyyy  
DCH x RLS REASON hh:mm:ss mm/dd/yyyy
```

The REASON indicates why the D-channel was released or re-established. The following reasons may be output when the D-channel is released:

CONFIRM = Released a D-channel due to a request from Meridian 1 software.

CTS DOWN = Released a D-channel because a Clear To Send signal from the DCE interface has dropped. Check the DCE interface (PRI or modem) and associated cables.

NO EXT CLK = No external clock received from the DCE interface. Check the DCE interface (PRI or modem) and associated cables.

NO RESPONSE = No response from far end after N200 transmissions. No action required, problem is at the far-end.

RED ALRM = Red (local) alarm has occurred. Check the PRI loop.

REMOTE = Release was initiated by the far-end. No action required, problem is at the far-end.

SABME WDM = Far-end responded to SABME with DM. No action required, problem is at the far-end (X11 Release 18).

TEST MODE = Release prior to entering test mode (X11 Release 18).

WRONG MODE = Release a D-channel due to an incorrect master/slave configuration (see prompt SIDE in LD 17).

YEL ALRM = Yellow (remote) alarm has occurred.

The following reasons may be output when the D-channel is re-established:

AUTO REC = Reestablished a D-channel due to auto-recovery.

CONFIRM = Established a D-channel due to a request from Meridian 1 software.

DMFO FRAME REC = Reestablished a D-channel after receiving a DM frame in the timer recovery state (X11 Release 18).

FRAME REC = Reestablished a D-channel after receiving an undefined frame from the far-end.

FRMR REC = Reestablished a D-channel after receiving a Frame reject from the far-end.

INDICATION = Established a D-channel.

INFO FRAME REC = Reestablished a D-channel after receiving a frame type with an information element field which is not allowed (X11 Release 18).

N(R) REC = Reestablished a D-channel after receiving a bad N(R) from the far-end.

N201 REC = Reestablished a D-channel after receiving a frame with an information field longer than N201 from the far-end.

N2X4 RNR REC = Reestablished a D-channel after receiving a N2X4 consecutive RNR frames (X11 Release 18).

TIMER REC = Reestablished a D-channel due to timer recovery.

WRONG HDRL REC = Reestablished receiving a frame with an incorrect header length (X11 Release 18).

With MSDL D-channels the layer 2 can respond with a reason for link reset or disable condition. The output is:

DCH: xx I PRIMI: RESET_IND TIME: hh:mm:ss

RESET_IND - rrrrrr

DCH : xx I PRIMI : DSBL_IND TIME: hh:mm:ss

DSBL_IND - rrrrrr

Where, rrrrrr is the reason for the reset or disable as follows:

NO RESOURCES — Configure the DCH on a different MSDL card.

DTE/DCE or RS232/R422 — Check switch settings on MSDL card and far-end.

LAYER 2 ERROR — Disable the DCH and enable with force download option.

DCH messages

DCH0001	ISDN package is not equipped.
DCH0002	Command not allowed.
DCH0003	DCHI is disabled.
DCH0004	Only one link can be monitored at one time.
DCH0005	Undefined link/DCHI state. There is a software/hardware mismatch. Action: 1. Disable and re-enable the DCHI card. 2. Check DCHI status.
DCH0006	DCHI not responding. Action: 1. Disable and re-enable the DCHI card. 2. 2. Check DCHI status.
DCH0007	Command invalid at this state.
DCH0008	Invalid source to the Overlay.
DCH0009	Invalid command entered.
DCH0010	Invalid parameter #1.
DCH0011	Invalid number of parameters.
DCH0012	DCHI is not configured.
DCH0013	Invalid message type.
DCH0014	Invalid IE type.
DCH0015	Invalid link monitor status.

DCH0016	Invalid link/DCHI number.
DCH0017	Invalid key entered.
DCH0018	Invalid total keys entered.
DCH0019	Invalid table number.
DCH0020	Transmit buffer is not empty.
DCH0021	Receive buffer not ready. Action: Check DCHI status.
DCH0022	Invalid Octet number.
DCH0023	Unexpected loop input.
DCH0024	Backup DCH is not configured.
DCH0025	DCH is already active.
DCH0026	Specified DCH is not established. Action: DCH must be in established state before switch command can be carried out.
DCH0027	DCH already established.
DCH0028	Command only valid for D-channels on MSDL card.
DCH0029	DCH has to be enabled first.
DCH0030	DCH has to be in Test Mode first.
DCH0031	Unable to enable the local loopback substate because the sub state is not idle.
DCH0032	Unable to disable the local loopback sub state because it is not in the local loopback sub state.
DCH0033	Unable to enable the remote loopback sub state because the sub state is not idle.
DCH0034	Unable to disable the remote loopback sub state because it is not in the remote loopback sub state.
DCH0035	Unable to run the local loopback test because the link is not in a local loopback sub state.

DCH

DCH0036	Unable to run the remote loopback test because the link is not in an idle sub state.
DCH0037	The feature specified for monitoring is invalid. Parameter #5 is not a recognized feature.
DCH0038	Invalid DCH number for ENL command.
DCH0039	Invalid DCH state for enabling the link.
DCH0040	Wrong number of input parameters for the enable command.
DCH0041	Input enable command not recognized.
DCH0042	MSDL card has to be in operational state.
DCH0043	Invalid DCH number.
DCH0044	Test or DCH maintenance command is not supported for D-channels configured on the MSDL card.
DCH0045	MSDL card is disabled.
DCH0046	Invalid maintenance request for DCH link.
DCH0047 {DCH #} {D-channel data}	Command is not supported for UIPE D-channels.
DCH0048 {DCH #} {D-channel data}	Set D-channel pointers failed for Download database.
DCH0049 {DCH #} {D-channel data}	D-channel has to be on MSDL card.
DCH0050 {DCH #} {D-channel data}	D-channel has to be UIPE for download database command.
DCH0051 {DCH #} {D-channel data}	MSDL card is not operational.
DCH0052 {DCH #} {D-channel data}	D-channel has to be enabled.
DCH0300	Test 200, interrupt handler interface, failed. Action: If test continues to fail, report software problem.
DCH0301	Test 201, interrupt handler-to-link interface, failed. Action: If test continues to fail, report software problem.
DCH0302	DCHI test 101 failed. No interrupt, but good data. Action: Replace DCHI.

DCH0303	DCHI test 101 failed. There is interrupt, but bad data. Action: Replace DCHI.
DCH0304	DCH test 101 failed. No interrupt and bad data. Action: Replace DCHI.
DCH0305	DCHI test 100 failed. Stuck interrupt. Action: Replace DCHI.
DCH0401	That command is not allowed. This is a single octet information element.
DCH0402	Only three message types can be specified in one command.
DCH0403	Only one feature can be monitored at one time. Action: STAT MON {DCH#} to see what is currently being monitored.
DCH0404	Invalid TN or no TN was entered.
DCH0405	Only five TNs can be specified for incoming or outgoing messages.
DCH0406	This TN has been specified already.
DCH0407	TN does not associate with the selected D-channel.
DCH0408	Backup D-channel is not allowed; primary D-channel should be used.
DCH0410	The ENL SERV command cannot be executed when the primary D-channel and, if equipped, the backup D-channel are in the established state. Action: Disable both D-channels before entering the ENL SERV command.
DCH0411	SDCH command is allowed only when IFC = SL-1 and RCVP = NO in LDp17.
DCH0421	dch# OVLD xxxx dch# is the d channel number, xxxx is the number of ISDN messages during last time interval) The overload control for the indicated PRI D channel is active. Any incoming new call setup is rejected by protocol control. Action: No action required unless this event is reported continuously on the same D channel. In those cases, one needs to investigate the cause and determine whether the D channel overload threshold value needs to be adjusted in Overlay 17 for the given D channel.
DCH1001	Invalid primitive-ID.

Action: Check DCHI status.

DCH1002 Unexpected primitive.

Action: Check DCHI status.

DCH1003 Protocol error.

Action: 1. If the error continues, check DCHI card status.

2. If the problem still continues, report it.

Output format:

DCH1003 DCH: w PROTOCOL: x LAYER: y ERROR: z

Where:

w = DCH device number

x = protocol used

y = layer number 1, 2 or 3

z = error condition which depends on the layer number

When y = 1, x = :

01H = illegal or unimplemented primitive

02H = no handshake signal, check link status/database

03H = invalid DCH configure table, check database

04H = invalid LRC at last download table, S/W problem

05H = data is too short, far end or SL-1 S/W problem

06H = data is too long, far end or SL-1 S/W problem

When y = 2, x = :

01H = peer initiated re-establish link, no action

02H = unsuccessful retransmission (N200 retries) for SABME, far-end problem

03H = unsuccessful retransmission (N200 retries) for DISC, far-end problem

04H = N(R) error, far-end problem

05H = received information field exceeding N201, far-end is sending bad data

06H = received non-implemented/undefined frame, far-end problem

07H = received I-frame but not allowed, far-end problem

08H = received FRMR frame

When $y = 3$, $x = :$

01H = received message with less than 4 octets far-end or SL-1 S/W problem

02H = received message with unsupported protocol discriminator, far-end or SL-1 S/W problem

03H = received message with unsupported information element, far-end or SL-1 S/W problem

04H = received undefined/unimplemented message type, check DCH download table

05H = received message with mandatory information element, far-end or L-1 S/W problem

06H = invalid call reference number, far end or SL-1 S/W problem

07H = invalid IE contents in optional IE field, far end or SL-1 S/W problem

08H = invalid IE contents in mandatory IE field, far end or SL-1 S/W problem

DCH1004 PRI is out-of-service.

DCH1005 Link release error.

Action: 1. Check DCHI status
2. Check the PRI to DCHI cable
3. Check PRI status

DCH1006 Link establishment error.

Action: 1. Check DCHI status
2. Check the PRI to DCHI cable
3. Check PRI status

DCH1007 Interrupt was lost.

Action: If more than ten times per day, run DCHI tests 200 and 201.

DCH1008 Output request buffer overflow.

Action: If more than five times per day, reset D-channel output buffer size in LD 17, using prompt OTBF.

DCH1009 PRI reported DCHI is out-of-service.

Action: 1. Check DCHI status
2. Check PRI status

DCH

3. Check the PRI to DCHI cable

DCH1010 DCHI is software disabled.

DCH1011 Late link establishment.

Action: 1. If the far-end is disabled, no action needed.

2. If the far-end is active, increase the timer threshold in LD 17, using prompt T200.

DCH1012 Late link release.

Action: 1. If the far-end is disabled, no action needed.

2. If the far-end is active, increase the timer threshold in LD 17, using prompt T200.

DCH1013 Invalid DCHI status due to software/hardware mismatch.

Action: 1. Disable and re-enable the DCHI card

2. Check DCHI status

DCH1014 Invalid DCHI status due to software/hardware mismatch.

Action: 1. Disable and re-enable the DCHI card

2. Check DCHI status

DCH1015 Receive buffer full.

Action: If more than five times per day, disable and re-enable DCHI.

DCH1016 Transmit buffer full.

Action: Check the DCHI card.

DCH1017 No end-of-message.

Action: Definitely a DCHI problem. Check the DCHI card.

DCH1018 No transmit buffer available.

Action: 1. Check PRI to DCHI cable

2. Check PRI status

3. Check DCHI status

DCH1019 DCHI is hardware disabled.

DCH1020	DCH1020 indicates the standby D-channel is not in the EST state during the switchover.
DCH1021	The DCHI is reset because too many DCH1015 messages have occurred.
DCH1024	The DCH port on the MSDL card could not be enabled because the MSDL card is not in an operational state.
DCH1025	Did not receive a confirmation from Layer 2 for MSDL DCH test state event; therefore, a timeout has occurred.
DCH1026	An invalid timeout occurred for the DCH test state. No further action is required for this event.
DCH1027	An invalid test confirmation was received from layer. No further action is required for this event.
DCH1028	The DCH has to be on the MSDL card for the maintenance task requested.
DCH1029	Resynchronization of the flow control counters failed when a flow control condition was detected by the MSDL DCH Handler application.
DCH1030	Output request buffer overflow for D channels on the MSDL card. Action: 1. Check PRI to DCHI cable. 2. Check PRI status. 3. Check DCHI status
DCH1031 x	Cannot enable DCH x because IPRA package is restricted.
DCH1039	The feature you specified to disable has not been enabled. Action: STAT MON {DCH#} to see what is currently being monitored.
DCH1040	The requested operation does not apply to the selected interface. Action: Attempt to enable SERV messages on an APISDN IFC.
DCH1042	DCH does not have GF capability.
DCH1043	Invalid call reference number.
DCH2001 {DCH #} {D-channel data}	DCH link established a timeout. Request to establish D-channel link failed and DCH will be reset.
DCH2002 {DCH #} {D-channel data}	Unexpected primitive received.

DCH

DCH2003 {DCH #} {D-channel data}	Invalid link state for timeout event.
DCH2004 {DCH #} {D-channel data}	Invalid DCH application status in timeout event.
DCH2005 {DCH #} {D-channel data}	PRI reported DCH is out of service.
DCH2006 {DCH #} {D-channel data}	Layer2 reset timeout
DCH2007 {DCH #} {D-channel data}	Invalid check PRI timeout - no PRI loop.
DCH2008 {DCH#} {D-channel data}	PRI is out of service.
DCH2009 {DCH #} {D-channel data}	PRI is out of service.
DCH2010 {DCH #} {D-channel data}	Enable Request Timeout.
DCH2011 {DCH #} {D-channel data}	Layer2 establish timeout.
DCH2012 {DCH #} {D-channel data}	No confirmation received from loadware for test mode.
DCH2013 {DCH #} {D-channel data}	Invalid test mode timeout event.
DCH2014 {DCH #} {D-channel data}	DCH link release timeout error.
DCH2015 {DCH #} {D-channel data}	Polling failed to release link.
DCH2016 {DCH #} {D-channel data}	DCH enable request denied - MSDL is not operational.
DCH2017 {DCH #} {D-channel data}	Invalid DCH link state - Enable request denied.
DCH2018	Cannot establish link - link is in test mode.
DCH2023 {DCH #} {D-channel data}	Maintenance request denied - DCH is not enabled.
DCH2040 {DCH #} {D-channel data}	PRI reported that primary D-channel is out-of-service.
DCH4283	Both D-channels have been released. Action: Establish the D-channel.
DCH4285 {error}	The ISPC command (EST, RLS or STAT) cannot be executed on the ISPC slave D-channel trunk. The format of the message is: DCHxxxx {error} where {error} is: 0: Tn entered is not a valid DTI2 phantom TN. 3: The trunk must be configured with the DTN class of service. 4: Data corruption with the route pointer.

- 7: The route is not configured with DSEL = DTA.
- 8: The route must not be an ISL route.
- 9: The route is not configured with DLTN = Yes.
- 10: The route is not configured as incoming.
- 11: The route is not configured with PRDL = BSY.
- 14: The route is not configured with NEDC = ETH.
- 15: The route is not configured with FEDC = ETH.
- 16: The route is not configured with CPDC = NO.
- 17: DDD_PACKAGE is restricted.
- 18: The trunk is not configured with SDCH = YES and SMAS = NO (i.e. Slave channel)
- 19: The ISPC Slave channel is not in Release state therefore the command cannot be executed. Do a RLS ISPC command first.

Action: Check system configuration, and retry the command.